INTRODUCTION

This program attempts to check the integrity of the EnSight6 or EnSight Gold file formats. Most files that pass this check will be able to be read by EnSight (see Other Notes below). If EnSight6 or EnSight Gold data fails to read into Ensight, one should run it through this checker to see if any problems are found.

Ens_checker makes no attempt to check the validity of floating point values, such as coordinates, results, etc. It is just checking the existence and format of such.

BASIC OPERATION

Program invocation:

If you invoke the program without any arguments, it will prompt you for the casefile to read. For example:

```
> ens_checker

*****************************************************************
*  EnSight Data Format Checker                                  *
*  ===========================                                  *
*   Currently,                                                  *
*   1. Must be run from directory in which casefile is located. *
*   2. Handles EnSight6 and EnSight Gold formats only.          *
*   3. Does not process SOS casefiles.                          *
*****************************************************************

<Enter casefile name (must be in directory containing it!) > mydata.case
```

You can alternatively invoke the program with the casefile on the command line.

```
> ens_checker mydata.case
```

Sample runs:

As ens_checker works it will be providing feedback. This feedback is important in interpreting what is wrong in the files. Here is a sample run, which was successful:

```
> ens_checker 3by3.case

*****************************************************************
*  EnSight Data Format Checker                                  *
*  ===========================                                  *
*   Currently,                                                  *
*   1. Must be run from directory in which casefile is located. *
*   2. Handles EnSight6 and EnSight Gold formats only.          *
*   3. Does not process SOS casefiles.                          *
*****************************************************************

<Enter casefile name (must be in directory containing it!) > 3by3.case

Casefile to Process:
--------------------
3by3.case   (Opened successfully)

---------------------
Major Sections Found:
---------------------
Required FORMAT   section    (at line 1)
Required GEOMETRY section    (at line 4)
Optional VARIABLE section    (at line 7)
Optional TIME     section    (at line 11)

---------------
FORMAT Section:
---------------
EnSight 6 Format   (set at line 2)
```

```
-------------
TIME section:
-------------
Info for timeset number: 1
----------------------------
Time set: 1    (at line 12)
   No description provided
   Number of steps:       1    (at line 13)
   Time values:           (starting on line 14)
                          time values[1] = 0

  >--------------------<
  > TIME section OKAY <
  >--------------------<

-----------------
GEOMETRY Section:
-----------------

--------
Model filename is:   3by3.geo      (at line 5)

   Static geometry

   --------
   Opened 3by3.geo successfully

   File type is:    ASCII
   Description 1:   EnSight test geometry file
   Description 2:   ==========================
   node ids:        assign
   element ids:     assign

   Global section:
      Number of nodes: 64
         Coordinates for (64) nodes found

   Part 1:
      Description is: 3 x 3 xy
      Unstructured Part
      Number of quad4 elements is: 9
         Connectivities for (9) quad4 elements found

   Part 2:
      Description is: 3 x 3 yz
      Unstructured Part
      Number of quad4 elements is: 9
         Connectivities for (9) quad4 elements found

   Part 3:
      Description is: 3 x 3 xz
      Unstructured Part
      Number of quad4 elements is: 9
         Connectivities for (9) quad4 elements found

   Part 4:
      Description is: 3 x 3 45
      Unstructured Part
      Number of quad4 elements is: 9
         Connectivities for (9) quad4 elements found

  >------------------------<
  > GEOMETRY section OKAY <
  >------------------------<

-----------------
VARIABLE Section:
-----------------

scalar per node:   scalar      (at line 8)
   Filename is: 3by3.scl
   Non transient variable
```

```
   --------
   Opened 3by3.scl successfully

   Description: 3by3 scalar variable

   Global section:
      (64) Nodal scalar values for unstructured nodes found

vector per node:   vector      (at line 9)
   Filename is: 3by3.vct
   Non transient variable

   --------
   Opened 3by3.vct successfully

   Description: 3by3 vector variable

   Global section:
      (192) Nodal vector values for unstructured nodes found

  >------------------------<
  > VARIABLE section OKAY <
  >------------------------<


                     >------------ Hooray! ----------<
                     >                               <
                     > Data verification SUCCESSFUL <
                     >                               <
                     >       with No Warnings        <
                     >                               <
                     >-------------------------------<
```

And here is a sample run, with a problem, namely a 'block' line is missing:

```
> ens_checker 3by3s.case

*****************************************************************
*  EnSight Data Format Checker                                  *
*  ===========================                                  *
*   Currently,                                                  *
*   1. Must be run from directory in which casefile is located. *
*   2. Handles EnSight6 and EnSight Gold formats only.          *
*   3. Does not process SOS casefiles.                          *
*****************************************************************

Casefile to Process:
--------------------
3by3s.case   (Opened successfully)

---------------------
Major Sections Found:
---------------------
Required FORMAT   section    (at line 1)
Required GEOMETRY section    (at line 4)
Optional VARIABLE section    (at line 7)
Optional TIME     section    (at line 11)

---------------
FORMAT Section:
---------------
EnSight 6 Format   (set at line 2)

-------------
TIME section:
-------------
Info for timeset number: 1
---------------------------
```

```
Time set: 1   (at line 12)
   No description provided
   Number of steps:       1   (at line 13)
   Time values:           (starting on line 14)
                          time values[1] = 0

  >-------------------<
  > TIME section OKAY <
  >-------------------<

-----------------
GEOMETRY Section:
-----------------

--------
Model filename is:   3by3s.geo      (at line 5)

   Static geometry

   --------
   Opened 3by3s.geo successfully

   File type is:    ASCII
   Description 1:   EnSight test geometry file
   Description 2:   ==========================
   node ids:        assign
   element ids:     assign

   Global section:
      Number of nodes: 0

   Part 1:
      Description is: 3 x 3 xy block
      Structured Part
      Not iblanked
      i j k = 4 4 1
      Number of nodes: 16
      Number of cells: 9
         Block X coordinates for (16) nodes found
         Block Y coordinates for (16) nodes found
         Block Z coordinates for (16) nodes found

   Part 2:
      Description is: 3 x 3 yz block

===> Problem:
-------------
Looking for one of the following valid line types:
   element type      (unstructured types, any of the following:
                         point    tria6    tetra10     penta15
                         bar2     quad4    pyramid5    hexa8
                         bar3     quad8    pyramid13   hexa20
                         tria3    tetra4   penta6
   block             (structured block)
   part              (the next part)
but found the following:
4       4       1

  >-------------------------<
  > GEOMETRY section FAILED <
  >-------------------------<


  >-*-*-*-*-*-* bummer! *-*-*-*-*-*-<
  >                                 <
  > Verification of the data FAILED <
  >                                 <
  >-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-<
```

After fixing the ‘block’ line and running the program again, another problem is encountered - namely, an extra space

at the end of the second line of x coordinates for the block that is part 2.

```
> ens_checker 3by3s.case

*****************************************************************
*  EnSight Data Format Checker                                  *
*  ===========================                                  *
*   Currently,                                                  *
*   1. Must be run from directory in which casefile is located. *
*   2. Handles EnSight6 and EnSight Gold formats only.          *
*   3. Does not process SOS casefiles.                          *
*****************************************************************

Casefile to Process:
--------------------
3by3s.case   (Opened successfully)

---------------------
Major Sections Found:
---------------------
Required FORMAT   section    (at line 1)
Required GEOMETRY section    (at line 4)
Optional VARIABLE section    (at line 7)
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---------------
FORMAT Section:
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EnSight 6 Format   (set at line 2)

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TIME section:
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Info for timeset number: 1
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Time set: 1   (at line 12)
   No description provided
   Number of steps:       1   (at line 13)
   Time values:           (starting on line 14)
                          time values[1] = 0

  >-------------------<
  > TIME section OKAY <
  >-------------------<

-----------------
GEOMETRY Section:
-----------------

--------
Model filename is:   3by3s.geo      (at line 5)

   Static geometry

   --------
   Opened 3by3s.geo successfully

   File type is:    ASCII
   Description 1:   EnSight test geometry file
   Description 2:   ==========================
   node ids:        assign
   element ids:     assign

   Global section:
      Number of nodes: 0

   Part 1:
      Description is: 3 x 3 xy block
      Structured Part
      Not iblanked
      i j k = 4 4 1
      Number of nodes: 16
```

```
      Number of cells: 9
         Block X coordinates for (16) nodes found
         Block Y coordinates for (16) nodes found
         Block Z coordinates for (16) nodes found

   Part 2:
      Description is: 3 x 3 yz block
      Structured Part
      Not iblanked
      i j k = 4 4 1
      Number of nodes: 16
      Number of cells: 9

===> Problem:
-------------
Previous lines end with 1 extra chars on the line,
but line 2 has 2 extra chars. The lines must be consistent
or EnSight will have trouble reading it.

===> Problem:
-------------
Not successful reading 16 X block coordinates

  >-------------------------<
  > GEOMETRY section FAILED <
  >-------------------------<


  >-*-*-*-*-*-* bummer! *-*-*-*-*-*-<
  >                                 <
  > Verification of the data FAILED <
  >                                 <
  >-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-<
```

After eliminating the extra space, the file then checked out fine.

Advanced Usage

Redirecting Output to a File:

ens_checker is writing to stderr, so if you want to redirect output to a file, you need to use ">&". For example, the following will place the output of the run into a file called output.file:

```
> ens_checker 3by3.case >& output.file
```

Other Notes

The word "most" is used above because one of the things that could pass the checker, but fail in EnSight is element connectivity of EnSight6 files with node ids. The ens_checker checks that node ids used in the element connectivities lie within the min and max range of the node ids, but does not verify that there is actually a node with each individual id.

The validity of model extents, presence of nan's, etc. are currently checked to some degree in ens_checker, but again, this is a format checker - not a model integrity checker.

See Also

User Manual:

EnSight Gold Casefile Format
EnSight6 Casefile Format